NORTH CAROLINA
STATE BUILDING CODE
1980 EDITION

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Accumulative Supplement to the

NORTH CAROLINA STATE BUILDING CODE

VOLUME III

HEATING

Air-conditioning, Refrigeration & Ventilation

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Section 202 (9-13-83)
In Section 202 page 2-8, add the words “or semi-rigid polybutylene” to paragraph (a) and the words “or polybutylene” to paragraph (b) of the definition of Piping.

Section 202 (6-9-82)
Revise definition to read as follows:

> “Water Heater—An appliance for supplying hot water for domestic or commercial purposes. It may be used for space heating if the water temperature does not exceed 150°F.”

Section 303 (b) (12-9-80)
Delete and add the following:
“See Section 2903 (b) of Volume I for access to equipment (such as furnaces, appliances, controls, electric strip heaters, all dampers, electronic air cleaners, coils and so forth.

Section 305.13(b) (3-12-85)
Add the following to Section 305.13(b):
(3) See Section 1502 for exhaust duct requirements.

(6-12-84) Add new Section 405 as follows:

405.0 SIZING OF L.P. GAS PIPING

Pipe sizing shall be in accordance with Figure 405.1 or 405.2. See Appendix B for sizing illustration.

Note: See pp. 14 and 15 for Illustrations.

852459

FIGURE 405.1

PIPE & TUBING SIZING

SINGLE STAGE REGULATION

OR

BETWEEN SECOND STAGE REGULATOR AND APPLIANCE

Maximum propane capacities listed are based on ½" W.C. pressure drop at 11" W.C. setting — Capacities in 1.000 BTU/HR

* Tubing may be:
Steel (ANSI/ASTM 539).
Brass (ANSI/ASTM 135).
Copper. Type K or L (ANSI/ASTM B88). or
Copper. refrigeration (ANSI/ASTM B280)

PIPE OR TUBING LENGTH. FEET	* TUBING SIZE				NOMINAL PIPE SIZE								
	⅜"	½"	⅝"	¾"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
10	39	92	199	329	275	567	1,071	2.205	3.307	6.221	10.140	17.990	36.710
20	26	62	131	216	189	393	732	1.496	2.299	4.331	7.046	12.510	25.520
30	21	50	107	181	152	315	590	1.212	1.858	3.465	5.695	10.110	20.620
40	19	41	90	145	129	267	504	1.039	1.559	2.992	4.778	8.481	17.300
50	18	37	79	131	114	237	448	913	1.417	2.646	4.343	7.708	15.730
60	16	35	72	121	103	217	409	834	1.275	2.394	3.908	6.936	14.150
80	13	29	62	104	89	185	346	724	1.086	2.047	3.329	5.908	12.050
100	11	26	55	90	78	162	307	630	976	1.811	2.991	5.309	10.830
125	10	24	48	81	69	146	275	567	866	1.606	2.654	4.711	9.613
150	9	21	43	72	63	132	252	511	787	1.496	2.412	4.281	8.736
200	8	19	39	66	54	112	209	439	665	1.282	2.038	3.618	7,382
250	8	17	36	60	48	100	185	390	590	1.138	1.808	3.210	6,549
300	---	---	---	---	43	90	168	353	534	1.030	1.637	2.965	5,927
350	---	---	---	---	40	83	155	325	491	947	1.505	2.671	5.450
400	---	---	---	---	37	77	144	303	458	883	1.404	2.492	5,084

NOTE: Determine distance from regulator to the furthermost appliance. Use this distance in selecting each section of pipe or tubing according to the gas load to be carried by that section. Method in accordance with NFPA No. 54.

FIGURE 405.2
PIPE & TUBING SIZING

BETWEEN FIRST AND SECOND STAGE REGULATORS

Maximum propane capacities listed are based on 2 psig pressure drop at 10 psig setting — Capacities in 1,000 BTU/HR

* Tubing may be:
Steel (ANSI/ASTM 539),
Brass (ANSI/ASTM 135),
Copper, Type K or L (ANSI/ASTM B88), or
Copper, refrigeration (ANSI/ASTM B280)

PIPE OR TUBING LENGTH, FEET	* TUBING SIZE				NOMINAL PIPE SIZE								
	⅜"	½"	⅝"	¾"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
10	730	1,700	3,200	5,300	3,200	7,500	12,800	24,000	40,000	88,000	133,000	237,500	489,000
20	500	1,100	2,200	3,700	2,200	4,200	8,800	18,000	33,000	61,000	93,500	165,500	341,000
30	400	920	2,000	2,900	1,800	4,000	7,200	14,000	26,000	49,000	76,500	136,500	281,000
40	370	850	1,700	2,700	1,600	3,700	6,800	13,500	24,000	46,000	71,000	127,000	262,000
50	330	770	1,500	2,400	1,500	3,400	6,300	12,600	22,500	43,000	65,000	116,000	240,000
60	300	700	1,300	2,200	1,300	3,100	5,600	12,000	21,700	40,000	61,000	109,000	224,000
80	260	610	1,200	1,900	1,200	2,600	4,900	10,000	18,000	34,000	52,000	93,000	192,000
100	220	540	1,000	1,700	1,000	2,300	4,300	9,000	15,000	31,000	45,500	81,500	168,000
125	200	490	900	1,400	900	2,100	4,000	7,900	13,500	28,000	41,500	74,000	152,500
150	190	430	830	1,300	830	1,900	3,600	7,200	12,600	25,000	37,000	66,500	137,000
175	170	400	780	1,200	770	1,700	3,300	6,700	11,400	23,500	34,500	61,500	127,000
200	160	380	730	1,100	720	1,500	3,100	6,200	10,600	22,000	32,000	57,500	119,000
250	—	—	—	—	643	1,341	2,772	5,545	9,480	19,677	28,621	51,429	106,436
300	—	—	—	—	587	1,224	2,531	5,062	8,654	17,962	26,127	46,948	97,163
350	—	—	—	—	544	1,133	2,343	4,686	8,012	16,630	24,189	43,466	89,955
400	—	—	—	—	509	1,060	2,192	4,384	7,496	15,556	22,627	40,658	84,146
450	—	—	—	—	480	1,000	2,066	4,133	7,066	14,666	21,333	38,333	79,333
500	—	—	—	—	455	948	1,960	3,921	6,704	13,914	20,238	36,366	75,262

To convert to capacities at 5 psig settings - X by 0.879
To convert to capacities at 15 psig settings - X by 1.130
To convert to capacities at 20 psig settings - X by 1.185

To convert to capacities at 30 psig settings - X by 1.345
To convert to capacities at 40 psig settings - X by 1.488
To convert to capacities at 50 psig settings - X by 1.618

Section 505.1 (b) (12-9-80)
Revise to read as follows:
(b) Factory built solid fuel type stoves and room heaters (Radiant and Circulating) shall be installed with a clearance of 36 inches from the top, front, back and sides of the equipment to combustible materials. Stoves and heaters which are installed in rooms which are large in comparison with the size of the stove or heater may be installed with reduced clearances provided the combustible material is protected in accordance with Table 505.1(b). The manufacturer shall furnish with each stove or heater, installation instructions specifying clearances and mounting instructions as called for in this section.

TABLE 505.1(b)

TYPE OF PROTECTION	REQUIRED CLEARANCE WITH NO PROTECTION				
Applied to and covering combustible materials within the distance specified as required clearance with no protection (See Fig. 305.1)	36″		18″		18′
	ABOVE	REAR & SIDES	ABOVE	REAR & SIDES	SINGLE WALL CONNECTOR
a. 28 gauge sheet metal space out a minimum of 1 inch	18	12	9	6	9
b. 3½″ thick masonary wall spaced out a minimum of 1 inch and adequately tied to wall being protected (See Note 4)	N/A	12	N/A	6	9
c. 22 gauge sheet metal on 1″ mineral wool batts reinforced with wire or equivalent spaced out a minimum of 1″	18	12	4	3	3

NOTES:

1. Spacers and ties shall be of noncombustible material and be located 16″ o.c.
2. All methods of protection require adequate ventilation between the protection material and adjacent combustible walls and ceilings.
3. Mineral wool batts (blanket or board) shall have a minimum density of 8# per cubic foot and a minimum melting point of 1500°F.
4. If a single wall connector passes thru a protective masonry wall, there shall be at least ½ inch of open ventilated air space between the connector and the masonry.
5. Clearances in front of stove or heater shall not be reduced to less than 36 inches.

Section 505.1(c) (12-9-80)
Revise to read as follows:
(c) Connectors shall be used to connect heaters and stoves to the vertical chimney unless the chimney is connected directly to the unit. Connectors shall be galvanized steel pipe meeting the thickness requirements of Table 505.1(c) or listed factory built chimney. Single wall connectors shall not pass through an attic or other non-occupied space. Connectors serving solid fuel burning equipment shall not be connected to a chimney flue serving equipment burning other fuels, or serving a fireplace unless the fireplace opening is sealed or the chimney flue is permanently sealed below the connection. Connectors shall not connect to a chimney in an attic. Connectors shall be installed with a minimum pitch of ¼″ per foot from the heating equipment to the chimney. Connectors shall be as short as possible with non-combustible supports a minimum of every 4 feet and with a minimum of 3 screws or rivets per joint.

TABLE 505.1 (c)

Steel Connectors	
Diameter of Connector	Minimum Gage
Less than 6″	26
6″ to 10″	24
12″ to 16″	22
over 16″	16

Section 505.1(d) (12-9-80)
Revise to read as follows:
(d) Unlisted solid fuel burning stoves and room heaters having less than 2 inches of ventilated open space beneath the fire chamber or base of the unit shall be mounted only on floors of combustible fire resistive construction extending not less than 18 inches beyond all sides of the unit and with no combustible material against the underside thereof. All other unlisted solid fuel burning stoves and room heaters shall have combustible floors protected in accordance with the following:

(1) Units having a ventilated open space of 2″ to 6″ beneath the fire chamber or base shall have combustible flooring protected by a minimum of 4 inch hollow masonry laid to provide air circulation through the masonry cores. The top of the masonry units shall be covered with minimum 24 gage sheet metal. The masonry floor protection shall extend not less than 18 inches on all sides of the unit. (When installed on non-combustible floor, such floor shall extend not less than 18 inches on all sides of the unit.)

(2) Units having over 6 inches of ventilated open space beneath the fire chamber or base of the unit shall have the combustible floor protected with closely spaced masonry units of brick, concrete, or stone providing a minimum thickness of not less than 2 inches. Masonry protection shall be either covered or placed over 24 minimum gage sheet metal. The masonry floor protection shall extend not less than 18 inches on all sides of the unit. (When installed on non-combustible floor, such floor shall extend not less than 18 inches on all sides of the unit.)

Add new paragraph (e) to read as follows:

(1) Stove mats, floor pads and protection shields shall be listed and installed in accordance with the terms of their listing.

Section 520 (12-11-84)
Revise Paragraph A to read as follows:
“Heating and cooling equipment installed outside shall be supported on pre-cast or poured concrete, masonry units, approved prefabricated inorganic materials, structural steel or pressure treated wood.”

Add the following to Paragraph B:
“Equipment may be supported from floor joists with steel supports or with wood supports when the equipment is labeled for zero clearance to combustibles.”

In the note under Paragraph D change “A, B, or C” to “*1, 2, or 3*”.

Section 602F, Page 6-2 (3-10-81)
Revise as follows:
In the first sentence, delete the words “woven asbestos”.
Conversion Burners, Page 14-20—Revise to read as follows:
Conversion Burners—
Installation of conversion burners shall conform to ANSI Standard Installation of Domestic Gas Conversion Burners, Z21.8-1971 and Addenda Z21.8a-1979, except that an automatic means to shut off the fuel supply to the burner(s) shall be provided in accordance with 1.4.7.7, NFPA-54-1972.

Section 604H, Exception No. 1 (12-14-82)
Revise Sub Item 2. to read as follows:
Ceiling supply outlets shall be protected in accordance with Section 1107(e)(2).

Section 607 (12-13-8)
Delete paragraph "B" of Section 607.

(9-13-83) & (6-12-84) Revise paragraph A of Section 609 to read as follows:

A. The use of such spaces shall be limited to:
   1. Detached single family dwellings not more than two stories in height. Except for the floor immediately above the underfloor plenum, supply ducts complying with Sections 606 and 607 shall be provided extending from the plenum to registers on the second floor level.
   2. Other buildings or portions of buildings classified as Type B (Business) and Type M (Mercantile) having a habitable space not exceeding 25,000 cubic feet in volume and not exceeding one (1) story in height when the following requirements are met:
      (a) When the space serves more than one tenant, one hour separation must be maintained within the plenum.
      (b) Install ionization type smoke detector at the inlet of the air handling equipment to stop air flow in case of fire.

Section 903.2 (3-8-83)
Add the following sentence to Section 903.2:
"Hoods shall be of construction equivalent to the standards of the National Sanitation Foundation (NSF)."

(3-13-84) Revise Section 903.4(b)(2)(1) to read as follows:

"All seams and joints shall have a liquidtight continuous external weld, except where the duct connects to the hood. In lieu of a welded connection, the duct may be flanged to the hood in accordance with Figure 903.4 or other equivalent method.

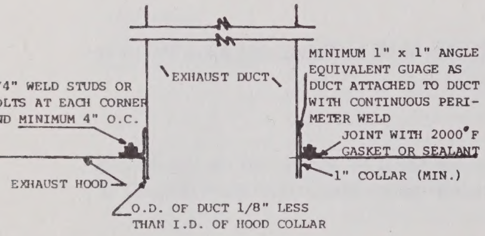

EXHAUST DUCT
4" WELD STUDS OR
LTS AT EACH CORNER
D MINIMUM 4" O.C.
MINIMUM 1" x 1" ANGLE EQUIVALENT GUAGE AS DUCT ATTACHED TO DUCT WITH CONTINUOUS PERIMETER WELD
JOINT WITH 2000°F GASKET OR SEALANT
1" COLLAR (MIN.)
EXHAUST HOOD
O.D. OF DUCT 1/8" LESS THAN I.D. OF HOOD COLLAR

FIGURE 903.4A

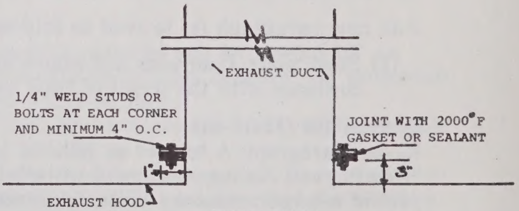

EXHAUST DUCT
1/4" WELD STUDS OR BOLTS AT EACH CORNER AND MINIMUM 4" O.C.
JOINT WITH 2000°F GASKET OR SEALANT
1"
3"
EXHAUST HOOD

FIGURE 903.4B

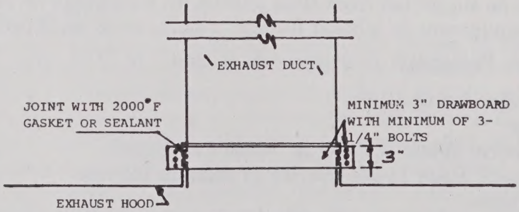

EXHAUST DUCT
JOINT WITH 2000°F GASKET OR SEALANT
MINIMUM 3" DRAWBOARD WITH MINIMUM OF 3-1/4" BOLTS
3"
EXHAUST HOOD

FIGURE 903.4C

(6-12-84) Add new paragraph 4 to Section 903.4(i) as follows:

(4) At the discretion of the authority having jurisdiction, an exhaust duct may terminate through an exterior wall under the following conditions:

   (a) The wall is of non-combustible construction.

   (b) The discharge shall have a minimum clearance of fifteen (15) feet from adjoining buildings, property lines, air intakes, windows or doors. The lowest edge of the outlet shall be not less than seven (7) feet above any adjoining grade level parking areas, driveways or walks that are within ten (10) feet of the outlet.

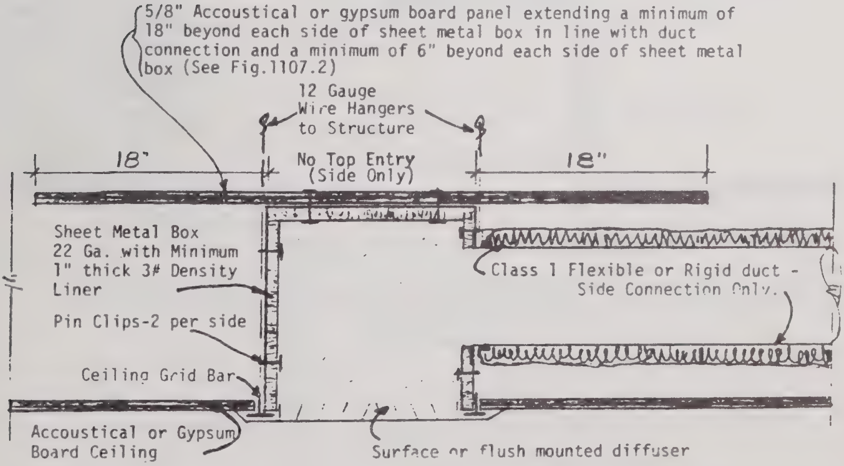
   (c) The discharge of exhaust air is away from the building wall in which it is installed.

   (d) Clearance to any combustible elements of the building shall be not less than 40 inches from the discharge.

   (e) If the termination is a louver installed in the wall, the cooking devices shall be exhausted through a water-wash type exhaust system.

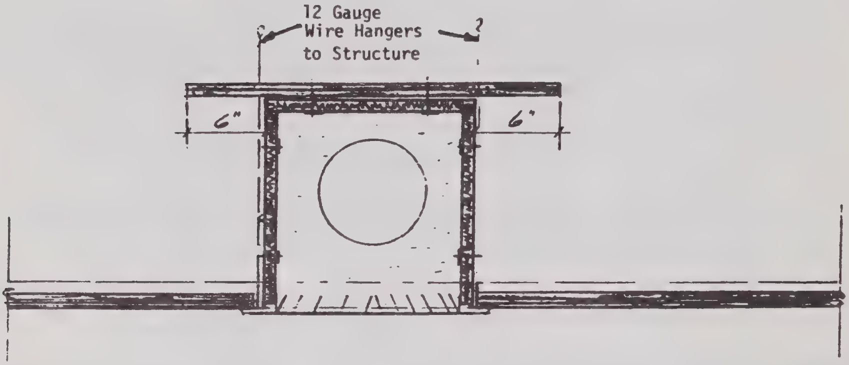
Section 1107(e)(2) (12-14-82)
Revise to read as follows:
(2) CEILING PROTECTION: Supply and return openings in ceilings which are part of a rated assembly and which are connected to a complete ductwork distribution system shall be protected using one of the following methods:
  (A) Specific designs in the UL Fire Resistance Index, or
  (B) UL Fire Resistance Index Alternate Protection Methods when applicable, or
  (C) Protection Methods illustrated in Figures 1107.1 through 1107.7.

ONE (1) HOUR RATED
ROOF/CEILING & FLOOR/CEILING ASSEMBLIES
Supply or Return Openings

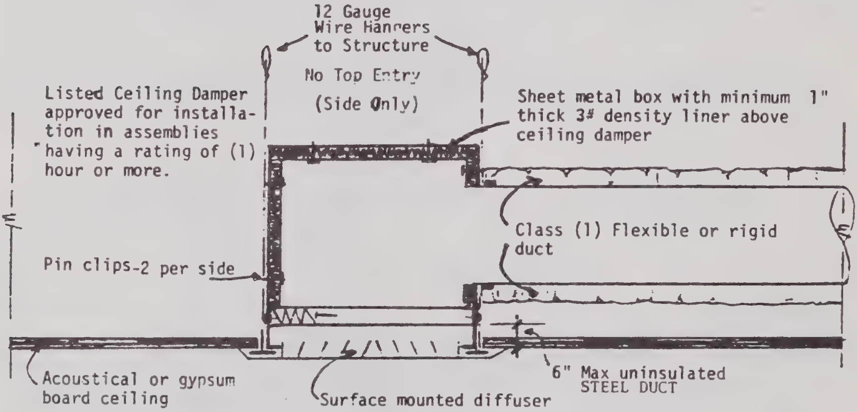

5/8" Accoustical or gypsum board panel extending a minimum of 18" beyond each side of sheet metal box in line with duct connection and a minimum of 6" beyond each side of sheet metal box (See Fig.1107.2)
12 Gauge Wire Hangers to Structure
18"
No Top Entry (Side Only)
18"
Sheet Metal Box 22 Ga. with Minimum 1" thick 3# Density Liner
Pin Clips-2 per side
Class 1 Flexible or Rigid duct - Side Connection Only.
Ceiling Grid Bar
Accoustical or Gypsum Board Ceiling
Surface or flush mounted diffuser

CROSS-SECTION THROUGH LONGITUDINAL CENTER-LINE OF AIR DUCT
Figure 1107.1

ONE (1) HOUR RATED
ROOF/CEILING & FLOOR/CEILING ASSEMBLIES
Supply or Return Openings

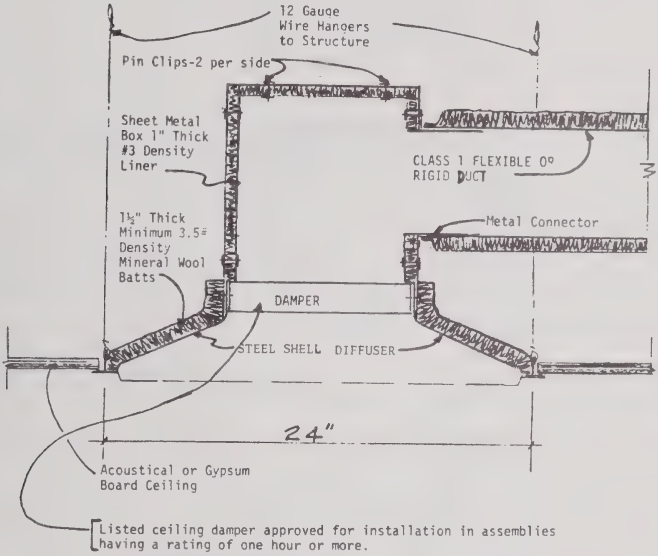


CROSS-SECTION THROUGH TRANSVERSE CENTER-LINE OF AIR DUCT OUTLET
Figure 1007.2


12 Gauge
Wire Hangers
to Structure
No Top Entry
(Side Only)
Listed Ceiling Damper approved for installation in assemblies having a rating of (1) hour or more.
Sheet metal box with minimum 1" thick 3# density liner above ceiling damper
Class (1) Flexible or rigid duct
Pin clips-2 per side
Acoustical or gypsum board ceiling
Surface mounted diffuser
6" Max uninsulated STEEL DUCT

CROSS-SECTION THROUGH LONGITUDINAL CENTER-LINE OF AIR DUCT
Figure 1107.3

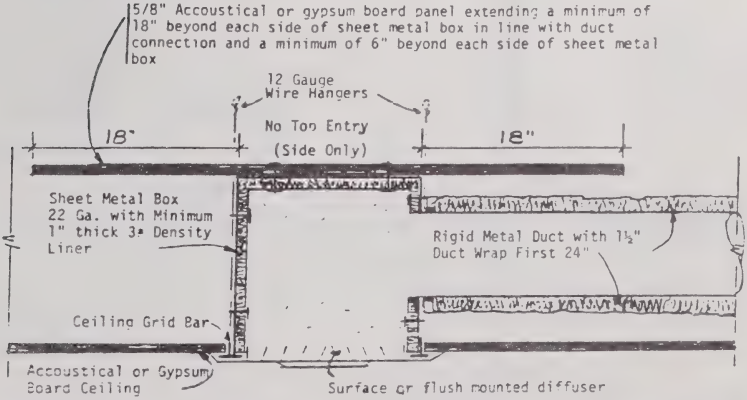
ONE (1) HOUR RATED
ROOF/CEILING & FLOOR/CEILING ASSEMBLIES
Supply or Return Openings


12 Gauge Wire Hangers to Structure
Pin Clips-2 per side
Sheet Metal Box 1" Thick #3 Density Liner
CLASS 1 FLEXIBLE OR RIGID DUCT
Metal Connector
1½" Thick Minimum 3.5# Density Mineral Wool Batts
DAMPER
STEEL SHELL DIFFUSER
24"
Acoustical or Gypsum Board Ceiling
Listed ceiling damper approved for installation in assemblies having a rating of one hour or more.

May also be used with damper assemblies detailed in U.L. Fire Resistance Index.

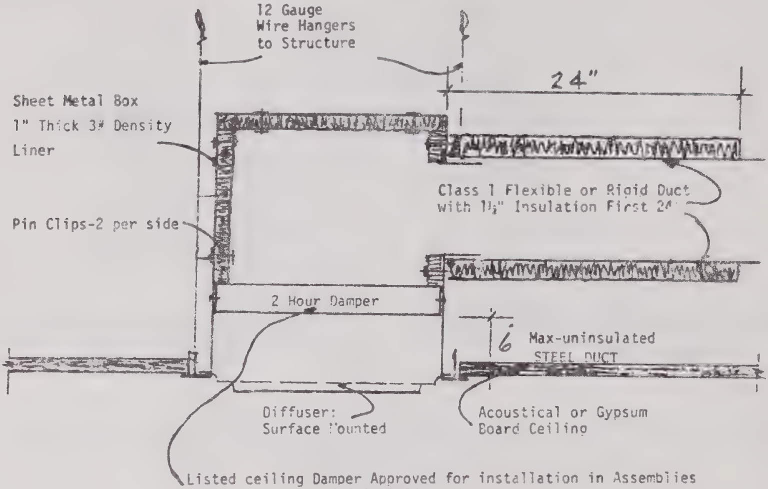
Figure 1107.4

TWO (2) HOUR RATED
ROOF/CEILING & FLOOR/CEILING ASSEMBLIES
Supply or Return Openings


5/8" Accoustical or gypsum board panel extending a minimum of 18" beyond each side of sheet metal box in line with duct connection and a minimum of 6" beyond each side of sheet metal box
12 Gauge Wire Hangers
No Top Entry (Side Only)
18"
18"
Sheet Metal Box 22 Ga. with Minimum 1" thick 3# Density Liner
Rigid Metal Duct with 1½" Duct Wrap First 24"
Ceiling Grid Bar
Accoustical or Gypsum Board Ceiling
Surface or flush mounted diffuser

CROSS-SECTION THROUGH LONGITUDINAL CENTER-LINE OF AIR DUCT
Figure 1107.5

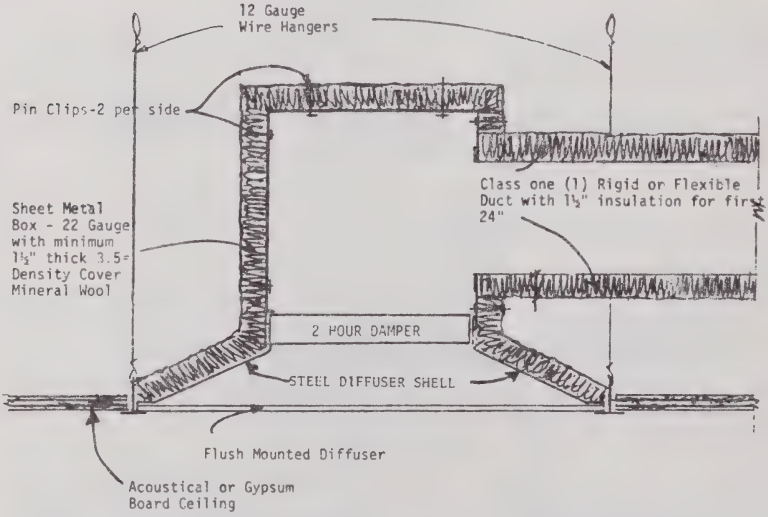
TWO (2) HOUR RATED
ROOF/CEILING & FLOOR/CEILING ASSEMBLIES
Supply or Return Openings



Listed ceiling Damper Approved for installation in Assemblies having a rating of TWO HOURS or More.

May also be used with Damper Assemblies detailed in U.L. Fire Resistance Index.

Figure 1107.6



Listed ceiling damper approved for installation in Assemblies having a rating of TWO HOURS OR MORE

May also be used with Damper Assemblies detailed in U.L. Fire Resistance Index.

Figure 1107.7

(9-13-83) Delete paragraph (c) of Section 1108.

Section 1201(g) (6-9-82)
Revise section to read as follows:

"A hot water supply storage tank, fired or unfired, shall not be used as a heating boiler if the water temperature exceeds 150°F."

Section 1406.0(a) (6-9-82)
Revise paragraph to read as follows:

Pipe: Gas pipe shall be minimum schedule 40 steel or wrought iron complying with ANSI B36.10 Standard for Welded and Seamless Wrought Steel Pipe; ANSI/ASTM A53 Specification for Black and Hot Dipped, Zinc Coated Welded and Seamless Steel Pipe; ANSI/ASTM A106, Specification for Seamless Carbon Steel Pipe for High Temperature Service; or ANSI/ASTM A120, Specification for Black and Hot Dipped Zinc Coated (Galvanized) Welded and Seamless Steel Pipe for ordinary use. Aluminum alloy pipe shall comply with specifications ASTM B-241 (except the use of alloy 5456 is prohibited) and shall be suitably marked at each end of each length indicating compliance with ASTM specifications.**

(6-12-84) Add the following between first and second paragraphs of Section 1406.0(a):

"*Plastic Pipe, Tubing and Fittings:* Plastic pipe or tubing and compatible fittings may be used outside underground only and shall conform with Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings, ASTM D2513, or Specification for Reinforced Epoxy Resin Gas Pressure Pipe and Fittings, ASTM D2517.

For use of plastic pipe, tubing and fittings in undiluted liquefied petroleum gas piping systems, see the Standard for Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA No. 58."

Section 1412 Subsections 3.1.6(a) Page 14-12 (6-9-82)
Revise subsection to read as follows:

3.1.6 Installation in Residential Garages:

(a) Gas utilization equipment in residential garages shall be installed so that all burners and burner ignition devices are located not less than 18 inches above the floor.

Section 1501 (3-10-82)
Revise to read as follows:
All bathrooms in residential construction containing more than one water closet shall be provided with means of exhausting air to the outside.

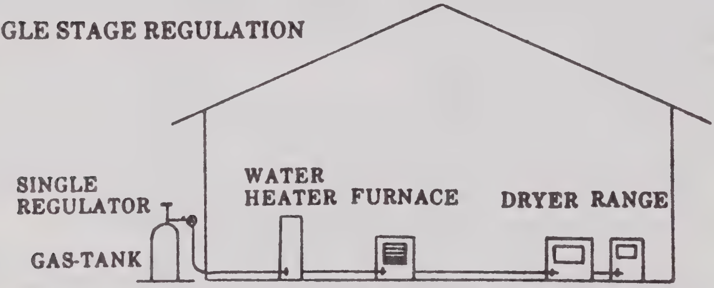
Section 1502 (3-12-85)
Revise Section 1502 to read as follows:
1502—VENTILATION (1 and 2 family residential)
Kitchen exhaust hoods of the ducted type shall be exhausted to the outside by ducts constructed of 30 guage minimum steel or 26 guage minimum aluminum, with 1" clearance to combustibles, or by a "B" labeled vent. Joints in round exhaust ducts shall be secured with three or more sheet metal screws. Listed ductless hoods may be used when installed in accordance with their listing. See Section 305.13 for hood clearance requirements.

Section 1705.0(b) (6-9-82)
Revise to read as follows:

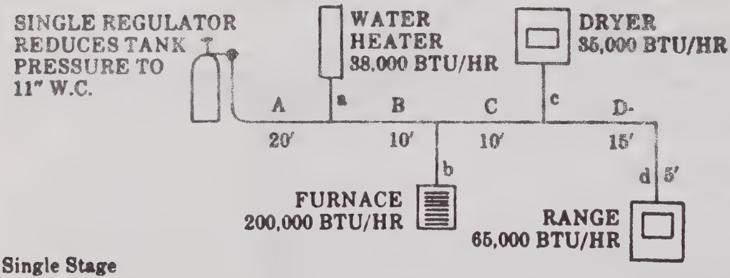
When cooling equipment is installed in attics, between the ceiling and the floor or roof above, or other areas where condensate may create a safety hazard (Electrical Equipment, etc.), an auxiliary drain pan with separate drain line shall be installed under the entire equipment. In lieu of an auxiliary drain pan, a float switch may be added to the unit condensate pan and wired into the electrical or control circuit of the equipment in such a way that the equipment will be cut-off when excessive condensate accumulates in the pan. Equipment installed in upper floor areas of multi-story structures, shall have either an auxiliary drain pan or the top connection of equipment drain pans having high and low drain connections shall be provided with a separate drain line.

Add the following illustration to Appendix B, page A-9A.

SINGLE STAGE REGULATION



SINGLE REGULATOR-REDUCES TANK PRESSURE
TO: 11" WATER COLUMN (W.C.)

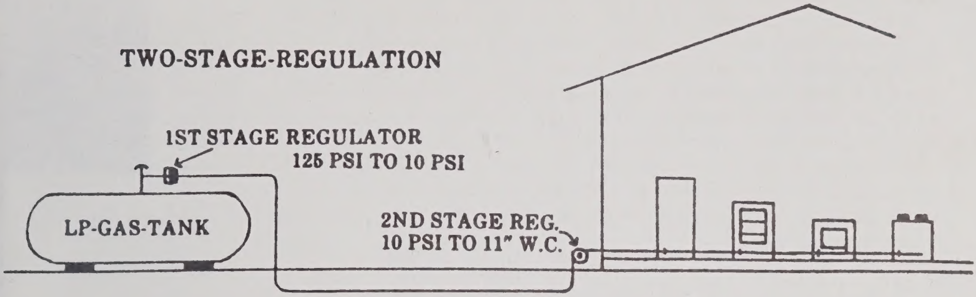


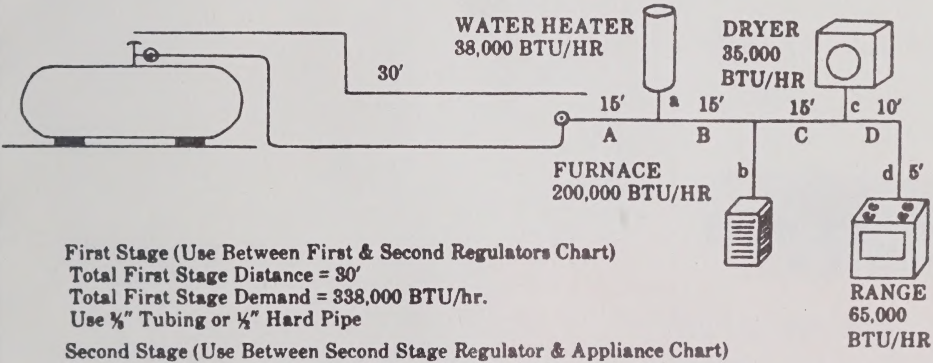
Single Stage
Sizing Method (Use "Single Stage Regulation" Chart) In Accordance with NFPA 54

Total Distance from Regulator to farthest appliance = 60′ (Use for all calculations)
Total Demand "A" Section Piping = 330,000 BTU/Hr. ..... 1" Hard Pipe
Total Demand "B" Section Piping = 300,000 BTU/Hr. ..... 1" Hard Pipe
Total Demand "C" Section Piping = 100,000 BTU/Hr. ..... ¾" Tubing or ½" Hard Pipe
Total Demand "D" Section Piping = 65,000 BTU/Hr. ..... ⅝" Tubing or ½" Hard Pipe
Total Demand "a" Section Piping = 30,000 BTU/Hr. ..... ½" Tubing or ½" Hard Pipe
Total Demand "b" Section Piping = 200,000 BTU/Hr. ..... ¾" Hard Pipe
Total Demand "c" Section Piping = 35,000 BTU/Hr. ..... ½" Tubing or ½" Hard Pipe
Total Demand "d" Section Piping = 65,000 BTU/Hr. ..... ⅝" Tubing or ½" Hard Pipe

Add the following illustration to Appendix B, page A-9B.

TWO-STAGE-REGULATION





First Stage (Use Between First & Second Regulators Chart)
Total First Stage Distance = 30'
Total First Stage Demand = 338,000 BTU/hr.
Use ⅜" Tubing or ½" Hard Pipe

Second Stage (Use Between Second Stage Regulator & Appliance Chart)
Total Second Stage Distance = 60" (Use for all calculations in 2nd stage)
Total Demand "A" Section Piping = 338,000 BTU/Hr. ..... 1" Hard pipe
Total Demand "B" Section Piping = 300,000 BTU/Hr. ..... 1" Hard pipe
Total Demand "C" Section Piping = 100,000 BTU/Hr. ..... ¾" Tubing or ½" Hard Pipe
Total Demand "D" Section Piping = 65,000 BTU/Hr. ..... ⅝" Tubing or ½" Hard Pipe
Total Demand "a" Section Piping = 30,000 BTU/Hr. ..... ½" Tubing or ½" Hard Pipe
Total Demand "b" Section Piping = 200,000 BTU/Hr. ..... ¾" Hard Pipe
Total Demand "c" Section Piping = 35,000 BTU/Hr. ..... ½" Tubing or ½" Hard Pipe
Total Demand "d" Section Piping = 65,000 BTU/Hr. ..... ⅝" Tubing or ½" Hard Pipe

UNIVERSITY OF N.C. AT CHAPEL HILL
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